

Discipline: EE	Semester: 3rd	Name of the Teaching Faculty: SRI SUBODH KANTA BARIK
Subject: ELECTRICAL ENGINEERING MATERIAL	No. of Days/per week class allotted: 04	No. of Weeks : 15
Week	Class Day	Theory Topics
1 st	01	Uni 1: Conducting Materials: Introduction, Resistivity, factors affecting resistivity
	02	Classification of conducting materials into low-resistivity and high resistivity materials
	03	Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
	04	Stranded conductors, Bundled conductors, Low resistivity copper alloys
2 nd	01	High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	02	Superconductivity
	03	Superconducting materials
	04	Application of superconductor materials
3 rd	01	Unit 2: Semiconducting Materials: Introduction, Semiconductors
	02	Electron Energy and Energy Band Theory
	03	Excitation of Atoms, Insulators, Semiconductors and Conductors
	04	Semiconductor Materials, Covalent Bonds
4 th	01	Intrinsic Semiconductors, Extrinsic Semiconductors
	02	N-Type Materials, P-Type Materials
	03	Minority and Majority Carriers, Semi-Conductor Materials
	04	Applications of Semiconductor materials
5 th	01	Unit 3: Insulating Materials: Introduction
	02	General properties of Insulating Materials(Electrical properties, Visual properties, Mechanical properties)
	03	General properties of Insulating Materials(Thermal properties, Chemical properties, Ageing)
	04	Insulating Materials – Classification, properties, applications
6 th	01	Insulating Materials – Classification, properties, applications
	02	Classification of insulating materials on the basis physical and chemical structure
	03	Insulating Gases(Introduction., Commonly used insulating gases)
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7 th	01	Unit 4: Dielectric Materials: Introduction
	02	

		Dielectric Constant of Permittivity
	03	Polarization
	04	Dielectric Loss
8 th	01	Electric Conductivity of Dielectrics and their Break Down
	02	Properties of Dielectrics.
	03	Applications of Dielectrics.
	04	Applications of Dielectrics.
9 th	01	Unit 5: Magnetic Materials: Introduction
	02	Classification(Diamagnetism, Para magnetism, Ferromagnetism)
	03	Classification(Diamagnetism, Para magnetism, Ferromagnetism)
	04	Classification(Diamagnetism, Para magnetism, Ferromagnetism)
10 th	01	Magnetization Curve
	02	Hysteresis, Eddy Currents
	03	Hysteresis, Eddy Currents
	04	Curie Point
11 th	01	Magneto-striction
	02	Soft and Hard magnetic Materials
	03	Soft magnetic materials, Hard magnetic materials
	04	Soft magnetic materials, Hard magnetic materials
12 th	01	Applications
	02	Applications
	03	Unit 6: Materials for Special Purposes Introduction
	04	Structural Materials
13 th	01	Protective Materials(Lead, Steel tapes, wires and strips)
	02	Protective Materials(Lead, Steel tapes, wires and strips)
	03	Protective Materials(Lead, Steel tapes, wires and strips)
	04	Other Materials 1. Thermocouple materials
14 th	01	2. Bimetals
	02	3. Soldering Materials
	03	4. Fuse and Fuse materials.
	04	5. Dehydrating material.
15 th	01	Revision(Q&A discussion, and doubt Clearing)
	02	Revision(Q&A discussion, and doubt Clearing)
	03	Revision(Q&A discussion, and doubt Clearing)
	04	Revision(Q&A discussion, and doubt Clearing)